

1    **WE CLAIM:**

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3            1. An aircraft comprising  
4                a) a fuselage  
5                b) thin supersonic wings on the  
6                fuselage,  
7                c) there being trailing edge flaps carried  
8                by the wings,  
9                d) said flaps configured to provide flap  
10              deflection to simultaneously control wing twist and to  
11              reduce drag, when the aircraft is operated at subsonic  
12              flight conditions.

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15            2. The aircraft of claim 1 wherein said  
16            wings have low sweep angularity relative to the  
17            fuselage to provide substantial laminar airflow, the  
18            wings further characterized as having relatively low  
19            torsional stiffness.

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1                   3. The aircraft of claim 2 wherein the  
2 wings are further characterized as having  
3                   b) a center of pressure, at subsonic flight  
4 conditions,  
5                   b) a torsional elastic center,  
6 and wherein in the absence of said flap deflection at  
7 subsonic flight condition said center of pressure is  
8 forward of said torsional elastic center, tending to  
9 create moments of force acting to twist the wing tip to  
10 higher angles of attack.

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13                  4. The aircraft of claim 2 wherein in the  
14 absence of said flap deflection said center of pressure  
15 is substantially closer to said torsional elastic  
16 center, under supersonic flight conditions, than under  
17 subsonic flight conditions.

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20                  5. The aircraft of claim 3 wherein with  
21 said flap deflection provided as in claim 1, the center  
22 of pressure is substantially closer to said torsional  
23 elastic center under subsonic flight conditions, than  
24 in the absence of said flaps.

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1                 6. The aircraft of claim 1 wherein said  
2 flaps provide camber acting to reduce subsonic wing  
3 leading edge vortex drag, and compressibility drag  
4 increase.

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7                 7. The aircraft of claim 1 including means  
8 for monitoring wing twist, and to control flap  
9 angularity to reduce said twist, thereby providing  
10 closed loop feed back.

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13                 8. The aircraft of claim 1 including a  
14 control system or systems to maintain the flaps  
15 positioned to control twist and drag, at subsonic  
16 flight conditions.

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19                 9. The aircraft of claim 8 wherein the  
20 control system or systems is configured to monitor  
21 flight conditions including air speed, and to position  
22 the flaps.

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